

REMARKS

Applicants thank the Examiner for withdrawing the rejections of record in the June 30, 2003 Office Action.

Status of the Application

Claims 1-32 are all the claims pending in the Application, as claims 30-32 are hereby added. Claims 1-19, 23-25 and 29 have been rejected.

Allowable Subject Matter

Applicants thank the Examiner for indicating that claims 20-22 and 26-28 would be allowed if rewritten in independent form. However, Applicants respectfully request that the Examiner hold in abeyance such rewriting until the Examiner has had an opportunity to reconsider (and withdraw) the prior art rejection of the other claims.

Claim Objections

The Examiner has objected to claims 27 and 28 due to informalities. The informalities noted by the Examiner have been corrected. Thus, withdrawal of the objection is respectfully requested.

Obviousness Rejection

The Examiner has rejected, under 35 U.S.C. § 103(a): (1) claims 1-10, 18 and 29 as being unpatentable over *Maeda* (JP 04-284484 A; hereinafter “*Maeda*”) in view of *Yano* (US 4,734,734; hereinafter “*Yano*”); (2) claims 11-13 and 19 as being unpatentable over *Maeda* in view of *Yano* in further view of *Gomi et al.* (US 6,037,964; hereinafter “*Gomi*”); (3) claims 14-17, 24 and 25 as being unpatentable over *Maeda* in view of *Yano* in further view of *Yamakawa* (US 5,923,358; hereinafter *Yamakawa*); and (4) claim 23 as being unpatentable over *Maeda* in

view of *Yano* in further view of *DeCock et al.* (US 4,524,372; hereinafter “*DeCock*”). These rejections are respectfully traversed.

Rejection of Claims 1-10, 18 and 29

The Examiner has alleged that a combination of *Maeda* and *Yano* discloses all of the features of independent claim 1.

Maeda discloses a destaticizer for a copying machine consisting of LEDs L1, L2, L3 arranged on a printing plate 12 and separated by partition plates 10. Diffusing plate 15 is provided to obtain an almost uniform light quantity across the entire surface of photosensitive drum 1 so that residual toner can be removed from drum 1 prior to image formation thereon and transfer to copy paper P.

In contrast, *Yano* discloses an erasure illumination device for removing an electric charge from a non-image area (area Y in FIG. 1 or area B in FIG. 2) on an image bearing member 6 during image formation thereon. *Yano* seeks to improve upon the un-sharp pattern 37 created by the simple arrangement of LEDs 32 (see FIG. 1) by providing light emitting elements 12 and light blocking parts 13 (see FIG. 2) to form a linear border between the image and non-image areas. The square illumination areas formed through the apertures 22 of light blocking parts 13 provide such a linear border, and also overlap on image bearing member 6, which is effective to increase the light quantity between the adjacent illumination elements 12. In other words, the overlap or mixing of light rays is *preferred*. (Col. 4, lines 18-23). FIG. 4 of *Yano* discloses a second embodiment wherein a lens means for condensing light 14 is arranged between light blocking parts 13 and image bearing member 6.

The Examiner takes the position that *Maeda* discloses many of the features recited in claim 1, but fails to teach or suggest “the converging lens system for projecting rays from said light emitting elements onto said photosensitive material” (O.A., pg. 3). Applicants agree that *Maeda* is silent with respect to these features.

Nevertheless, the Examiner applies *Yano*, taking the position that it discloses “a converging lens system (14) for decreasing the divergent angle of the light rays so as to effectively condense the light rays to the image bearing member” (Office Action, pg. 4). Additionally, the Examiner alleges that one of ordinary skill would have been motivated to modify *Maeda* with *Yano* to “allow effective light rays to reach the surface of the image bearing member within the desired area delimiting the printed dot as well as to further condense the light rays onto the surface of the image bearing member to formed a sharp dot as suggested by *Yano* at col. 4, lines 1-4 and 45-48” (Office Action, pg. 4).

However, Applicants respectfully submit that one of ordinary skill would not have been motivated to modify *Maeda* with *Yano* as the Examiner has alleged. It has long been held that the Examiner must “show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for a combination in the manner claimed.” *In re Rouffet*, 47 USPQ2d 1453 (Fed.Cir. 1998). The mere fact that references can be “combined or modified does not render the resultant combination [or modification] obvious unless the prior art also suggests the desirability of the combination [or modification].” *In re Mills*, 916 F.2d 680 (Fed.Cir. 1990); MPEP §2143.01.

Here, Applicants respectfully submit that there is no reason why one of ordinary skill in the art at the time of the invention would have looked to *Yano*'s erasure illumination device to have modified *Maeda*'s destaticizer for a copy machine.

As an initial matter, Applicants respectfully submit that the Examiner's proffered reason for modifying *Maeda* is unsupported, as neither *Maeda* nor *Yano* teach or suggest any "printed dot," as both are directed to non-printing (*i.e.*, destaticizing and erasure) operations.

Specifically, *Maeda*'s destaticizer is arranged to provide the simple destaticization of the entire width of the photosensitive drum 1 as it rotates. It is completely irrelevant to *Maeda*'s system what pattern light from LEDs L1 - Ln is provided in, as long as it is provided across the entire face of the drum 1 in an even fashion. This wide and even provision of light is effectively governed by the inventive arrangement of *Maeda*, and there is no teaching or suggestion that *Maeda*'s system is in any way deficient.

In contrast, the only purpose of the arrangement of LEDs 12, light blocking parts 13 and lens means 14 in *Yano* is to provide a specific shape for the light pattern emitted from LEDs 12, in order to provide a clean and even border between the image and non-image areas on image bearing member 6. However, the shape of the emitted light is simply not a concern in *Maeda*'s destaticizer, and there are no image and non-image areas to be divided.

Accordingly, one of ordinary skill in the art at the time of the invention would not have been motivated to modify *Maeda* in view of *Yano* to provide a sharp definition between different portions of the photosensitive drum 1, because no such definition is needed.

Additionally, even if one of ordinary skill in the art were motivated to modify *Maeda* in view of *Yano* as the Examiner has alleged, Applicants respectfully submit that neither reference, alone or in any reasonable combination, teaches or suggests “an optical printing head,” as recited in independent claim 1.

Specifically, as discussed above, the LEDs of *Maeda* are arranged within a destaticizer, which is not an optical “printing head.” Even the Examiner’s alleged modification of *Maeda*’s destaticizer (in view of *Yano*’s lens means 14) would fail to change this basic difference.

Thus, Applicants respectfully submit that independent claim 1 is patentable over the applied references and that rejected dependent claims 2-13, 18, 19 and 29 are allowable, *at least* by virtue of their dependency from claim 1.

Further, Applicants respectfully submit that rejected dependent claims are separately patentable over the applied references for the following additional reasons.

For example, regarding claim 4, Applicants respectfully submit that the applied references fail to teach or suggest that “spaces between said thin plates are filled up with a transparent coating material to coat said light emitting elements.”

Although the Examiner alleges that FIGS. 2B and 3B of *Maeda* disclose such an arrangement (O.A., pg. 4), Applicants respectfully submit that these Figures at best show only a thin coating of some kind of material on the LEDs. This thin coating does not “fill” up the “spaces between said thin plates.” *Yano* is silent with respect to any transparent coating material.

Regarding claim 6, Applicants respectfully submit that the applied references fail to teach or suggest that the “partitioning device comprises a thick plate having openings for exposing said light emitting elements.”

Applicants respectfully submit that no “thick plate” is provided in either *Maeda* or *Yano*, as the LEDs in both references are separated only by thin vertical walls.

Further, regarding claim 7, Applicants respectfully submit that the applied references fail to teach or suggest that the “openings of said thick plate are filled up with a transparent coating material to coat said light emitting elements.”

As discussed above with respect to claim 4, Applicants respectfully submit that the Figures of *Maeda* cited by the Examiner, at best, show only a thin coating of some kind of material on the LEDs. This thin coating does not “fill” up any “openings” in *Maeda*. *Yano* is silent with respect to any transparent coating material.

Further, regarding claim 29, Applicants respectfully submit that the Examiner’s alleged combination of *Maeda* and *Yano* would fail to teach or suggest that “less than all of the light emitting elements are activated to emit light at a single time, and specific patterns are thereby generated on the photosensitive material.”

Specifically, although *Yano* does disclose varying usages of its LEDs 12 to form various image and non-image portions, one of ordinary skill would not have modified *Maeda* to provide such a feature. Specifically, *Maeda* is directed to a destaticizer, which requires the use of all of its LEDs at a single time to effectively destaticize photosensitive drum 1. Accordingly, one of ordinary skill would not have provided a system where some of the LEDs could be turned off, as

it would render *Maeda* “unsatisfactory for its intended purpose,” and thus there would have been “no suggestion or motivation to make the proposed modification.” *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) MPEP § 2143.01.

In light of the above, Applicants respectfully request that the Examiner withdraw this rejection.

Rejection of Claims 11-13 and 19

The Examiner takes the position that the alleged combination of *Maeda* and *Yano* discloses many of the features recited in claim 11-13 and 19, but fails to teach or suggest (O.A., pg. 5):

1. the staggered arrangement of these rows (claim 11), adjacent two rows of the light emitting elements being paired to emit rays of a different color from other pairs of row of the light emitting elements (claim 12), and the light emitting elements being aligned in both widthwise and lengthwise of the photosensitive material (claim 13), the plate-like partitioning device (claim 19).

Applicants agree that no reasonable combination of *Maeda* and *Yano* teach or suggest these features.

Nevertheless, the Examiner applies *Gomi*, alleging that it discloses these features and that one of ordinary skill would have been motivated to modify the alleged combination of *Maeda* and *Yano* with *Gomi* “for the purpose of providing a high resolution of printed dots.”

In contrast, Applicants respectfully submit that one of ordinary skill in the art at the time of the invention would not have been motivated to modify *Maeda* and/or *Yano* (or any reasonable combination thereof) with *Gomi* as the Examiner has alleged.

Gomi is directed to the provision of an exposure head for a color printer that does not employ an optical system to converge light from LED sources upon a photosensitive material (col. 2, lines 6-9). *Gomi* discloses (see FIGS. 5, 8 and 9) an exposure head 20 provided in a printing apparatus 10. LEDs 31-33 are arranged on base board 30 in a zigzag pattern (col. 8, line 40) and are within openings 29 of light shielding panel 25. A front surface panel 22 is arranged atop light shielding panel 25, and is provided with small openings 21 to allow light from the LED to be incident upon photosensitive sheet 1.

Thus, even assuming, *arguendo*, that one of ordinary skill would somehow have been motivated to provide the light shaping features of *Yano* in the *Maeda* system that is unconcerned with such shaping, Applicants respectfully submit that one of ordinary skill would not have been further motivated to modify this alleged combination with the color exposure head disclosed in *Gomi*.

First, *Maeda* (even in combination with *Yano*) is directed to a destaticizer that emits a single color light upon a photosensitive drum to destaticize the drum prior to image formation thereon. There would be no reason to modify such a destaticizer to provide features of a color exposure head such as that disclosed by *Gomi*, as there is simply no reason to provide multiple color light in *Maeda*.

Further, the Examiner's alleged modification of *Maeda* in view of *Yano* includes the provision of *Yano*'s lens means 14 within the *Maeda* destaticizer. However, as discussed above, *Gomi* is expressly directed to a system without such a lens means.

Thus, one of ordinary skill would not have simply modified the alleged combination of *Maeda* and *Yano* in view of *Gomi* as the Examiner has alleged. One of ordinary skill would either not have modified the alleged combination at all in view of *Gomi*, or would have removed the lens means 14 from the alleged combination in view of *Gomi*. Either option is fatal to the Examiner's rejections herein.

Additionally, even if it were possible to modify *Maeda* and/or *Yano* with *Gomi* as the Examiner has alleged, Applicants respectfully submit that none of the applied references, either alone or in any reasonable combination, teach or suggest the features recited in dependent claims 11-13 and 19.

As an initial matter, Applicants respectfully submit that claims 11-13 and 19 are allowable, at least by virtue of their dependency, and that *Gomi* fails to provide the features missing from the alleged combination of *Maeda* and *Yano* vis-à-vis independent claim 1.

Further, regarding claim 11, Applicants respectfully submit that the applied references fail to teach or suggest that the "light emitting elements of each row are spaced from each other by a distance that is equal to or slightly less than a length of each light emitting element in the perpendicular direction to the conveying direction of said photosensitive material, and said light emitting elements of one row are staggered from those of adjacent rows in said perpendicular direction by an amount approximately equal to said distance."

In contrast (to the extent that the patent Figures can be relied upon)¹, each of the applied references disclose LEDs that are spaced apart from each other by distances that are far greater than the length of each LED. Specifically, LEDs L1 and L2 of *Maeda*, LEDs 12 of *Yano*, and LEDs 31-33 of *Gomi* are all spaced from each other by distances greater than their length.

Regarding claim 13, Applicants respectfully submit that the applied references fail to teach or suggest that the “light emitting elements are aligned in both widthwise and lengthwise directions of said photosensitive material, and emit rays of different colors from one row to another to print said latent image in said different colors.

In contrast, the Examiner concedes that *Gomi* discloses LEDs arranged in a zig-zag pattern. This zig-zag pattern fails to teach or suggest LEDs aligned in width and length directions. *Maeda* and *Yano* are silent with respect to any different arrangement, as these references only show arrangements of single rows of LEDs.

Thus, Applicants respectfully request that the Examiner withdraw this rejection.

Rejection of Claims 14-17 and 23- 25

Regarding independent claims 14 and 16, the Examiner takes the position that the alleged combination of *Maeda* and *Yano* discloses many of the features recited in these claims, but fails to teach or suggest “the plurality of printing heads, and the dichroic mirrors” (O.A., pg. 6). Applicants agree that no reasonable combination of *Maeda* and *Yano* could teach or suggest such features.

¹ It has long been held that, “[w]hen the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. See *Hockerson-Halberstadt, Inc. v. Avia Group Int’l*, 222 F.3d 951, 956, USPQ2d 1487, 1491 (Fed. Cir. 2000); MPEP § 2125.

Nevertheless, the Examiner applies *Yamakawa*, taking the position that it discloses these features. Additionally, the Examiner alleges that one of ordinary skill would have been motivated to further modify the alleged combination of *Maeda* and *Yano* with *Yamakawa* “for the purpose of recording color image on the photosensitive material with combined light sources of three primary colors” (O.A., pg. 7).

In contrast, Applicants respectfully submit that one of ordinary skill would not have been motivated to modify the alleged combination of *Maeda* and *Yano* with *Yamakawa* as the Examiner has alleged.

Yamakawa is directed to a color laser printer where an optical system is used to replace prior art polygon mirror systems (col. 1, lines 10-45). *Yamakawa* discloses various configurations of semiconductor light sources, such as different color light sources 21a-21c in FIG. 4, that are reflected or transmitted by half-mirrors 24a and 24b and directed through imaging lens 23 and onto photosensitive surface 22 to produce a color image.

Thus, even assuming, *arguendo*, that one of ordinary skill would somehow have been motivated to provide the light shaping features of *Yano* in the *Maeda* system that is unconcerned with such shaping, Applicants respectfully submit that one of ordinary skill would not have been further motivated to modify this alleged combination with the color laser printer disclosed in *Yamakawa*.

First, *Maeda* (even in combination with *Yano*) is directed to a destaticizer that emits a single color light upon a photosensitive drum to destaticize the drum prior to image formation thereon. There would be no reason to modify such a destaticizer to provide features of a color

printer such as that disclosed by *Yamakawa*, as there is simply no reason to provide multiple color light in *Maeda*.

Additionally, regarding claim 16, even if one of ordinary skill were motivated to modify the references as the Examiner has alleged, Applicants respectfully submit that *Maeda*, *Yano* and *Yamakawa*, either alone or in any combination, fail to teach or suggest a side-printing device comprising “three optical printing heads.”

Specifically, although the Examiner alleges that “three printing heads” are shown in FIG. 4 of *Yamakawa*, this is clearly not the case. *Yamakawa* discloses three light sources 21a-21c, but these light sources are arranged within a single printing head.

Thus, Applicants respectfully submit that independent claims 14 and 16 are patentable over the applied references, and that rejected dependent claims 15, 17 and 23-25 are allowable, *at least* by virtue of their dependency.

Additionally, regarding claim 23, Applicants respectfully submit that this claim is patentable over the Examiner’s separate rejection involving *De Cock* at least by virtue of its dependency from independent claim 16. Further, Applicants respectfully submit that *De Cock* fails to teach or suggest the features missing from the references applied against independent claim 16, as discussed above.

Further, Applicants respectfully submit that dependent claims 24 and 25 are separately patentable over the applied references, as none of the applied references teach or suggest the specific arrangement of the dichroic mirrors recited in these claims.

Thus, Applicants respectfully request that this rejection be withdrawn.

New Claims

Claims 30-32 are hereby added. Claims 30-32 are fully supported *at least* by page 1 of the instant Application. Claims 30-32 are respectfully submitted to be allowable *at least* by virtue of their dependency.

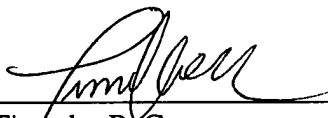
Conclusion

In view of the foregoing, it is respectfully submitted that claims 1-32 are allowable. Thus, it is respectfully submitted that the application now is in condition for allowance with all of the claims 1-32.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Please charge any fees which may be required to maintain the pendency of this application, except for the Issue Fee, to our Deposit Account No. 19-4880.

Respectfully submitted,



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